

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



Bay Area Branch

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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-002536**Date Inspected:** 20-May-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1530**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China

<b>CWI Name:</b>	Zhang Bao Lei and Hu Wei Qing			<b>CWI Present:</b>	<b>Yes</b>	<b>No</b>	
<b>Inspected CWI report:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Rod Oven in Use:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Electrode to specification:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Weld Procedures Followed:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Qualified Welders:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Verified Joint Fit-up:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Approved Drawings:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Approved WPS:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
				<b>Delayed / Cancelled:</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>
<b>Bridge No:</b>	34-0006			<b>Component:</b>	OBG and SAS Tower Fabrication		

**Summary of Items Observed:**

On this date, Caltrans Office of Structural Material (OSM) Quality Assurance (QA) Inspector Joselito Lizardo was present as requested to perform observations on the fabrication of Orthotropic Box Girder (OBG) and SAS Tower at Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China.

The QA Inspector has randomly observed the following activities on these Bays mentioned below;

Bay # 2: 77 and 114M Tower Mock-ups, Plate Cutting, Rolling

This QA Inspector observed Tower Mock-up was idle so with the cutting machine. On separate location, this QA observed rolling of 60mm thick plate with marking P155B was completed. On horizontal milling machine, two 65mm thick plates with mark P327B and P326 were seen in progress.

Bay 3-OBG side/bottom panel:

The QA Inspector randomly observed three ZPMC welders with ID Numbers 037779, 049769 and 053753 utilizing the Shielded Metal Arc Welding (SMAW) Process in the 2F (Horizontal Fillet) Position with ZPMC WPS WPS-B-P-2112, to tack weld open-Ribs to Side Plate SP085-001, SP413-001, SP88C and SP089-001. The QA Inspector randomly observed ZPMC CWI Zhang Bao Lei monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 189 amps, 23.5 volts. Weld parameters appeared to comply with contract requirements.

This QA Inspector performed Visual Test (VT) on the following completed side plate splice joints on one side only (top side) due to limited access on the bottom side; 1) SP428-001-012~016/SP414-001-012~016 2)

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SP081-001-011 3) SP086-001-011 and 4) SP412-001-011. These four plate splice joints deemed acceptable to contract requirements.

This QA Inspector also observed drilling of 16 – 24mm diameter bolt holes on one end of bottom panel bottom flange BP167A and BP140A.

### Bay 4 Tower Diaphragm

This QA Inspector observed ZPMC magnetic particle (MT) technicians Mr. Cai Xin Xin and Mr. Wang Wei perform 10% MT at the fillet welds of the following two side panels and one bottom panel;

1. SP569-001-001 to 012
2. SP609-001-013 to 024/037 to 048
3. BP168-001-007 to 018

After ZPMC technicians completed their test, this QA Inspector also performed 10% MT/100% VT on the above mentioned side and bottom panels fillet welds and found deemed acceptable to project requirements.

The QA Inspector randomly observed ZPMC welder Wu Zhibin ID Number 049804, utilizing the Submerged Arc Welding (SAW) Process in the 1G Position (Flat Groove) with ZPMC WPS WPS-B-T-2221-B-U3c-S-1, to weld the fill pass in weld joint NSD1-SA20-110A on Tower Diaphragm Top Plate Sub-Assembly. The QA Inspector randomly observed ZPMC CWI Yeyong Jun monitoring weld parameters. The QA Inspector also randomly monitored weld parameters and recorded them as follows: 518 amps, 31.0 volts with a travel speed of 424 mm per minute. The weld parameters appeared to comply with contract requirements.

### Bay 7-OBG - Floor Beam Sub Assembly:

The QA Inspector randomly observed ZPMC welders Xie Jin Xia ID Number 048038 and Liu Xie ID number 066236, utilizing the FCAW Process in the 2F (Horizontal Fillet) Position with ZPMC WPS WPS-B-T-2132-3, to weld gusset stiffeners to the web on Sub-Assembly LD004-003 and FB003-042 weld numbers 044, 048, 051, 052, 047 and 045. The QA Inspector randomly observed ZPMC CWI Hu Wei Qing monitoring weld parameters and noted as follows; 302Amps, 32.0Volts and 430mm/min travel speed. The weld parameters appeared to comply with contract requirements.

The QA Inspector randomly observed ZPMC Welder ID Number Li Wenguo 066261, utilizing the Shielded Metal Arc Welding (SMAW) Process with TL508 4.0mm diameter electrode in the 2F (Horizontal Fillet) Position with ZPMC WPS WPS-B-P-2112, to tack weld flange to the web of Floor Beam Sub-Assembly FB009-002. The QA Inspector randomly observed ZPMC CWI Zhu Tian Shu, monitoring weld parameters. Weld parameters appeared to comply with contract requirements.

### Bay #8: Tower Diaphragms

This QA observed bevel cutting and bending of various sizes and shapes of heavy metal for diaphragm ring. Plates being bent were P1378(S)-4/23(G) using procedure HSR1(T)-1659 and P1082(W)-4/23(N) using procedure HSR1(T)-1656 and natural gas of less than 650 degree C thermal heat input with the aid of hydraulic ram and welded jig.

This QA also observed various related welding activities ranging from grinding/cleaning of other side of groove bevel after carbon arcing on diaphragm plate WD1-A1-B-1B, preheating of diaphragm plate WSD1-SA226-10A

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prior SAW welding and carbon arcing of run off tab on diaphragm ring ESD1-SA309.

Bay #8: Tower Diaphragms  
WD1-A1-B-1B Diaphragm plate ground  
to sound metal after carbon arcing.



Bay #7: OBG Floor Beams.  
Sub-assembly of floor beam to 300mm X  
300mm hollow steel underway.



### Summary of Conversations:

No significant conversation occurred today.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Lizardo, Joselito
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Quality Assurance Inspector
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<b>Reviewed By:</b>	Cochran, Jim
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QA Reviewer
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